Natural Resource Conservation and Policy

-OR-

How can we live more sustainably on this wonderful planet?

To answer this question, we will need radically new ways of approaching problems. I hope these will give you inspiration:

"Dare Mighty Things"

— Motto, NASA Jet Propulsion Laboratory

**"The bigger the problem,
the bigger the opportunity."**

—Vinod Khosla, Venture Capitalist

"The best way to get a good idea is to get a lot of ideas."

—Chemist Linus Pauling

"Start by doing what is necessary; then do what's possible, and suddenly you are doing the impossible." *—Francis of Assisi*

"We all know your idea is crazy. The question is whether it is crazy enough."

—Nobel Physicist Niels Bohr

"Have a healthy disregard for the impossible."

— Larry Page, co-founder of Google

"If you want more successes, you're going to have to live with more failures. You can't have one without the other."

—Tina Selig, Professor of Entrepreneurship, Stanford University

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I am happy to meet you at your convenience. Email me to schedule an appointment.

What is Natural Resource Conservation?

My favorite description of natural resource conservation:

"The oldest task in human history," wrote Aldo Leopold, "is to learn to live on a piece of land without spoiling it."

- ***The primary goal of natural resource conservation is to supply what humans need while trying to minimize impacts on the environment***.
- ***It combines science (primarily biology) and policy (decision making).***

Resource conservation is about survival of both humans and our planet. We literally cannot survive without resources from the natural world. They supply our food, lodging, clothing, energy, clean water and even our oxygen! But we must minimize our impacts because over the long-term, human welfare and environmental quality are inseparable. The environment can live without us, but we cannot live without it.

Course Description

The course begins with an introduction to the history of conservation and its ecological, economic and social foundations. We discuss the basic principles of resource management including sustained yield, ecology, and the effects of world population growth. With this foundation, we take a more detailed look at the management of specific resources, including soils, agriculture, rangeland, forestry, wildlife, and fisheries, then fossil fuels and renewable energy.

The course takes the long view. Most of our resource problems have been caused because people put short-term interests over their own best interests in the long run. In addition to that, the history of natural resource management is a key part of the last 10,000 years of human history. As poet Gary Snyder put it, resource management began when we "stopped chasing our food and started growing it." All of civilization is based on natural resource management. NRM has greatly increased the carrying capacity of the Earth for humans, but often at the expense of other species. Throughout its history, NRM has put people first and short-term over long-term goals. We need to change that. We need to take a long view toward the future and think of many generations down the road. What will we leave for them?

In addition to taking the long view, the course takes a global view. Since the days of the spice trade, natural resource management has had global implications. Now there are so many humans on the planet that we are having impacts on the entire planet and its climate. Natural resource managers are working hard to reduce these impacts, but it's a big job. We need creative young people like you to help develop innovative solutions.

Themes

- Human survival depends on resource conservation.
- Natural resource conservation has greatly increased the carrying capacity of the Earth for humans.
- We have made unprecedented changes to ecosystems in recent decades to meet growing demands for food, fresh water, fiber, and energy.
- These changes have helped to improve the lives of billions, but at the same time they weakened nature's ability to deliver key services such as purification of air and water and protection from floods and storm surges
- Humans have faced serious environmental impacts in the past and in most cases (though not all) human ingenuity saved the day.
- We now face environmental challenges on a global scale. We will need fundamental changes in our approach to solve these challenges.

Course Objectives:

Upon completion of this course, the student should:

- Consider both human needs and the needs of ecosystems.
- Be able to tolerate, and even appreciate, diverse viewpoints.
- Recognize that natural resource conservation is inherently interdisciplinary. It involves almost every discipline taught on campus and there are hundreds of specialties within resource conservation.
- Recognize that few disciplines are more controversial than resource management—and few are more important to our survival and that of our planet. People have very different views on the value of the environment.
- Recognize that *everything is connected*. Resources are not separate entities, but communities of living, interacting organisms and their abiotic environments.
- Recognize that the history of resource management is one of turning an increasing amount of the world's biomass into humans and the things humans want and need. This is having major impacts on other species.
- It is also a history of increasing domestication. We started with grass seeds and small livestock, then other plants, trees, and finally fish. Will anything truly wild be left?
- Recognize our total dependence on natural resources and our own *personal* impacts on them.
- Recognize the complexity of our resource problems; that there are often no simple answers and that *all* decisions have consequences.
- Recognize the importance of our philosophy in determining both the types of environmental problems we are likely to confront and the types of solutions we are willing to consider. For example, are humans the most important organism on the planet? Should financial profit be the most important focus of our lives? Does nature have any rights?

Required Text:

For those of you on a tight budget, an eBook is available online and I am trying to get copies to put on Reserve in the Mather Library in IARC (the silver building next to where our class meets) and. You will also find the first 4 chapters of Chiras on Blackboard in case it takes time to get your copy of the text.

***Natural Resource Conservation: Management for a Sustainable Future*, 9th or 10th Edition by Daniel D. Chiras & John P. Reganold.**

This book provides vital background and supplementary information that we don't have time to cover in lecture but that all Natural Resources and Environment students should know. You can order a new or used copy at **http://www.UAFText2U.com**

Here is a link to a paperback version of on Amazon for $24.99 + 10 shipping.
https://www.amazon.com/Natural-Resource-Conservation-Management-Sustainable/dp/9332536686/ref=sr_1_6?keywords=chiras&qid=1565645517&s=books&sr=1-6

Attend and Participate in Class

A study a few years ago found that freshmen who missed just two class periods their freshman year were less likely to graduate than those who attended all their classes. Attendance will count for 5% of the final grade (that's half a letter grade). It's okay to miss a few classes, but try not to make it a habit.

It's also helpful to participate in class. In order to get everyone involved, I prefer to call on people than strictly wait for someone to answer. Sometimes freshmen are reluctant to respond when called on but try to get used to it. Your thoughts on these matters are important and I like everyone to participate. .

Take Notes

Research makes it clear that students who take notes do better in classes and are more likely to graduate. Note taking helps keep your mind from wandering; it helps you concentrate on the class. I strongly recommend taking notes.

Blackboard

We use the online course center called "Blackboard" (I abbreviate it BB or Bb) for many things in this class. This year, several of the lectures will be found on Blackboard. It allows us to post copyrighted material (since only those with a password can access it), the gradebook is kept online, and you can access lecture notes, announcements, handouts, etc. It will also be the place to take quizzes and submit your assignments. Go to http://classes.uaf.edu/ and log in using your UA username (eg. sktodd). If you don't know your user name or have any questions about email or Blackboard, contact the Computing Help Desk at helpdesk@alaska.edu**.**

Academic Honesty:

The UAF Student Code of Conduct requires that collaboration among students will not be allowed on essays, tests, exams or online quizzes. Copying or paraphrasing another student's writing on any of these assignments is a violation of the Student Code. Evidence of academic dishonesty (either copying anyone else's work or allowing someone to copy yours) will be presented to the Director of Judicial Services and may result in an F for the course and possible expulsion from the University.

Email: please include a subject & your name

If you send an email to m, please put **"NRM 101" as part of the subject line**. Then it really jumps out to me. Most faculty get over 60 messages/day. If you want to be sure we read your email, ALWAYS include a subject. Otherwise, it could to be considered spam and deleted.

Quizzes & Assignments

There is at least one quiz due by 11:59 pm almost every Monday!

NOTE: You cannot pass this course without doing the quizzes. In every field, the 101-level courses tend to be heavy on vocabulary. In this respect, 101 courses are like learning a new language; it's hard to discuss the complex concepts without first being fluent in the "language" of a discipline. The quizzes help develop your fluency in the basic concepts of NRM that you will need for upper division courses.

There is a quiz on every lecture topic, such as agriculture, forestry, soils, fisheries, etc. You do not need to wait till the last minute; you can do the quiz as soon as we have covered the topic in class. You'll have two chances to get a perfect score on each quiz. If you take a quiz twice, only the second score will be recorded.

I design the **online quizzes & assignments to DISAPPEAR after the due date**. I've found this encourages people to get them in on time. If you absolutely could not get one of these done before it disappeared, write me an email with an explanation of why you were late and I will consider turning it back on for you.

I don't like being tough on deadlines, but **if you get behind in this course, it is tough to catch up**. I prefer to be tough on deadlines than see people get hopelessly behind in the course.

Tests & Final Exam

There will be a Midterm and one comprehensive Final Exam that covers all the material covered in the semester. Each of these will include several true/false and multiple-choice questions, as well as several short answer and essay questions. Dates for tests and the exam are given on the class schedule. They should also appear under the "My Grades" link on BB.

Questions on Test Scores

If you feel there is a mistake in the grading of a test or assignment, it is important for you to point it out. Graders do make mistakes and in classes as well as in life, it's important to defend yourself when you fell you are in the right.

Please write me an email explaining any concerns you have about how tests or any assignment has been graded.

No Early Final Exams

Early final exams are not allowed (an airline ticket is not an excuse for missing the final exam). However, if you have more than 2 exams in one day, provide proof and if possible, I will allow you to take the final exam at a different time.

Missed Test Policy

This policy is an effort to be fair to those who did take the test on time and who have complained in the past that they, too, would have liked extra time to study (or sleep, etc).

Sports Teams. If you are on a team that requires you to miss a test, you must have an excuse signed by your coach and make arrangements with me to take the test as soon as you return.

Illness. if you are seriously sick, you should stay home. You won't do well on the test and could infect others. However, please write me an email asap (preferably before the test) and arrange with me to make it up as soon as possible.

Grading Policy

Zeros are very bad for your final grade! Try hard not to get a single ZERO! **It is always better to turn in *something* than take a zero**. Those who flunk this course inevitably have several zeros on the grade sheet. This is NOT a difficult course—unless you fail to do the work. Grades will be based on the percentage of points earned in the course. There may be some slight changes in the points on things, but it won't be by much.

ITEM	POINTS	% of total points
16 Quizzes varying from 30 to 148 points	1171	39%
Final Exam (400) and Midterm (300)	700	24%
7 Written Assignments	700	24%
Active Engagement in 3 Role Play Exercises	160	5%
Class Attendance	170	5%
3 Reflections on Role Play Exercises	68	2%
TOTAL	**2969**	100%

The letter I grade (incomplete) is a temporary grade used to indicate the student has completed the majority of the work in the course with at least a C, but for *extraordinary reasons beyond the student's control* (such as sickness) is not able to complete the course. Negligence is not an acceptable reason for an I grade. The remaining work must be finished in 3 months or less.

Plus and minus will be used as follows: Note that this course cannot count as a requirement if the student receives anything less than a C-.

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
100-93%	92-90	89-87	86-83	82-80	79-77	76-70	69-67	66-64	63-60	59-57	56 or less

Anyone who has less than 51% of the points possible after the 2nd. test will be withdrawn from the course. It is better to receive a W than an F.

You will be sent an email if this is the case.

Learning Disabilities:

All of us have strengths and weaknesses when it comes to learning. Every qualified student is welcome in my classroom. If you have a particular learning disability that may interfere with your ability to perform the work in this course, I am happy to work with you, disability services, veterans' services, rural student services, etc. to find reasonable accommodations. A good place to start is the Disabilities Office of the Health Center (ext.6158). To be fair to all the students, no *special* accommodations will be made until a letter from the Disabilities Office is given to the professor. I will appreciate your cooperation in this.

Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. *As required*, if I notice or am informed of *certain types of* misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: https://cms-test.alaska.edu/handbook.

Students who have difficulties with oral presentations or writing are strongly encouraged to get assistance from the UAF Speaking Center (907-474-5470, speak@uaf.edu) and the Writing Center (907-474-5314, 8th floor Gruening).

NRM 101 ***DRAFT*** Schedule FALL 2019.

WK		Date		CLASS TOPIC	READINGS and VIDEOS	ASSIGNMENT DUE DATES Try NOT to leave everything until Monday. Some of these take TIME to do!
0	M	Aug	26	What sparked your interest in conservation? Anonymous survey on the environment. If time, Negotiate case of Amazon Parrot.	Read "The Land Ethic" by Aldo Leopold and Chapter from *The Rights of Nature* by David Boyd. Answer questions on both of these. Paper due on Friday. .	
	W	Aug	28	HISTORY of CONSERVATION in the US	Read slides on What is Conservation. Watch online lectures on terminology (on Bb). Terminology & Environmental History Quizzes are due by Sep 9, but you can take them any time before that!	Answer questions on The Rights of Nature. See Bb for instructions. Submit paper on Bb. Find the reading in Introduction/Folder A and the paper instructions in Introduction/Folder B. **Due by 11:59 pm THURSDAY, Aug 29**
	F	Aug	30	Discuss The Rights of Nature reading & environmental ethics handout. Should Nature have rights? Pass out directions for the Commons Game we'll play on Wed & Fri next wk		.
1	M	SEP	2	**LABOR DAY—NO CLASS**		.
	W	SEP	4	RESOURCE POLICY EXERCISE #1: **Managing the Commons**. ATTENDANCE WILL BE TAKEN. **Bring Commons Game Instructions and a Calculator.**		Optional: **Take Entry Quiz online for up to 70 points Extra Credit**. It can't hurt you, but it can help & it will give you an idea of some of the topics we will cover & what my tests are like. Due by 11:59 pm on Wed. Sep 4.
	F	SEP	6	2nd Day, RESOURCE POLICY EXERCISE #1: **Managing the Commons**, ATTENDANCE WILL BE TAKEN. **Bring a Calculator**		
2	M	SEP	9	Discuss the results of the Commons Game. Who are the winners? Which group did the best? What were the strategies you used? Lecture on COMMON PROPERTY RESOURCES (CPRs)		1) Terminology Quiz & 2) Environmental History Quiz Due at 11:59 pm.
	W	SEP	11	Tragic example of CPR mgmt: *Taking Stock* on the Collapse of the Newfoundland Cod Fishery. Questions on film are due next Monday on Bb.		
	F	SEP	13	Successful example of CPR mgmt: Conservation in Namibia, where they care about both humans & the environment		
3	M	SEP	16	The importance of WATERSHEDS Be prepared to discuss "Silent Streams" article.	READ watershed article, "Silent Streams."	1) Reflection on the Commons Game 2) Common Property Quiz (includes questions on Namibia 3) Questions on Taking Stock (submit on Bb)
	W	SEP	18	Protecting watersheds: ways to reduce STORMWATER RUNOFF and instructions for your stormwater mgmt. plan.	You will be drawing a site plan to prevent "even one drop of rain" from leaving the study site. Directions are on Bb & will be discussed in class.	
	F	SEP	20	Resource Supply: Principles of ECOLOGY	READ Chiras Ch.3: Lessons from Ecology.	

4	M	SEP	23	EXTINCTIONS (The Biodiversity Crisis). Discuss Setting Conservation Priorities Assignment	World Wildlife Fund, *Living Planet 2016*. You don't have to read every word to get a lot out of this highly respected report.	1) Watershed Quiz and 2) Ecology Quiz due by 11:59 pm
	W	SEP	25	ECOSYSTEM SERVICES		
	F	SEP	27	Discuss the STORMWATER MGMT PLANS. Your Stormwater Mgmt Plan is due in class. Start population if time.	We will hang the stormwater plans around the room. Mention 2 things that stand out to you about them.	**Stormwater Plan Due IN CLASS today**
5	M	SEP	30	The ANTHROPOCENE. Guest Speaker Roger Kaye of US Fish & Wildlife Service		1) Extinctions and 2) Ecosystem Services Quizzes due by 11:59 pm
	W	OCT	2	POPULATION: can the Earth support 11 Billion people? Work in pairs to answer key questions, then we will discuss the answers and projections of population growth.		Setting Conservation Priorities Part 1 due by 11:59 pm (on Bb). Feel free to submit it early.
	F	OCT	4	Work in class on group project "**Setting Conservation Priorities**" Part 2. Fill out the table in small groups then we will compare the group results. Turn in your tables at the end of class.		
6	M	OCT	7	Basics of Sustained Yield and review for the Midterm.	Finish watch sustained yield lecture online	1. Sustained Yield and 2. Population Quizzes due at 11:59 pm
	W	OCT	9	The value of WETLANDS. Guest speaker Christi Buffington.		
	F	OCT	11	**MIDTERM EXAM** will cover everything through Oct. 9. See test review sheet on Blackboar	d	
7	M	OCT	14	SOILS: The Foundation of Terrestrial Ecosystems Listen to Nitrogen lecture online	Chiras Ch.6: Nature of Soils & "Soil Biodiversity" on BB.	
	W	OCT	16	Finish Soils, Begin Agriculture		
	F	OCT	18	How do we feed 9 billion people? What can we do to increase the supply of food for the world's growing population while minimizing impacts? Work in small groups to list potential solutions	READ Chiras Ch. 5: Hunger & Ch.7: Agriculture Read Instructions for Wild, Wild Horses	
8	M	OCT	21	Finish Soils & Agriculture		1) Soils and Nitrogen Quiz and 2) Agriculture Quiz due by 11:59 pm
	W	OCT	23	RANGELAND MANAGEMENT		
	F	OCT	25	RANGELAND MANAGEMENT --Discuss Wild Horse Mgmt exercise & sign up for the role you want to play --Discuss the UN Climate Summit Simulation & your position description due Nov 15	Read Chiras Ch.13: Rangeland Mgmt Read Wild Horse Negotiation Instructions.	

9	M	OCT	28	FORESTRY & SILVICULTURE (the art of growing trees)	Read Chiras Ch.14: Forest Mgmt Read "Trees have social networks too!"	1) Rangeland Quiz 2) Wild, Wild Horses Quiz due by 11:59 pm
	W	OCT	30	RESOURCE POLICY EXERCISE #2: WILD, WILD HORSES		
	F	NOV	1	Finish and Discuss WILD, WILD HORSES		
10	M	NOV	4	Finish forestry Start Wildland Fire Mgmt		Wild, Wild Horses Reflection
	W	NOV	6	The Era of Mega Fires.	View Wildland Fire Management lecture slides	
	F	NOV	8	Salmon Management with Dr. Peter Westley, UAF Fisheries Program		
11	M	NOV	11	FOSSIL FUELS: Concentrated Ancient Sunshine. Discuss UN Climate Summit Simulation & your position description due Friday	Read Chiras Ch.22: Nonrenewable Energy	Forestry & Wildland Fire Mgmt Quiz
	W	NOV	13	Ice on Fire	Watch Climate Change lectures on Bb	Submit (on Bb) your Position Description for your role in the climate talks. (100 points, 50 pts off for late papers).
	F	NOV	15	CLIMATE CHANGE—Causes & Solutions Leave time for caucuses to get together in preparation for Monday's Summit.	STUDY Climate Summit material BEFORE class and bring your position description with you.	
12	M	NOV	18	RESOURCE POLICY EXERCISE #3: Mock United Nations Climate Summit. You will play a minister of a country or director of an organization. You must submit your Position Paper on your country before the game or you won't be prepared to play the game.	You will be graded on your participation and how well you defend your country or organization's position.	Fossil Fuels Quiz and Climate Change Quiz
	W	NOV	20	RESOURCE POLICY EXERCISE #3: Mock UN Climate Summit	Attendance required.	
	F	NOV	22	Discuss the Climate Talks. Discuss Good News assignment for Monday		
13	M	NOV	25	Report on GOOD NEWS IN CONSERVATION. See directions on Bb and post your story on the Discussion Board, **but also be prepared to give a ~3-5 min presentation on it in class**. Check the Discussion Board and find something no one else has already reported on.	What are the greenest cities doing? What are the greenest corporations doing? What are new developments in batteries? What are new developments in electric cars? What ways are proposed to reduce CO2 in the air? New developments in agriculture, species recovery….any good news story connected with NRM. More ideas in the assignment instructions on Bb	Reflection on the Climate Summit due by 11:59 pm.
	W	NOV	27	Finish short presentations on Good News in Conservation		
	F	NOV	29	**THANKSGIVING BREAK, NO CLASS**		
14	M	DEC	2	NRM IN REAL LIFE: Don Striker, Superintendent, Denali Nat'l Park, AK		.

	W	DEC	4	Dr. Tom Marsik on Renewable Energy	Read Chiras Ch.23: Sustainable Energy	
	F	DEC	6	Course Summary		
15	W	DEC	11	FINAL EXAM , 10:15 a.m.-12:15 p.m., Wednesday, December 11 in regular classroom.	*NOTE: EARLY EXAMS ARE NOT AN OPTION*	